

This Listing of the Claims replaces all previous Listings of the Claims.

Listing of the Claims:

1. (Currently Amended) A process of removing suspended and dissolved material from fruit and vegetable wastewater comprising the steps of:

adding an inorganic coagulant polymer to the wastewater ~~creating to~~ create a charge interaction wherein coagulated solid particles are formed from the suspended and dissolved material in the wastewater; and

adding a synthetic organic polymer having an effective known molecular size and weight to the wastewater to neutralize all the coagulated solid particles into a plurality of solid particles each having a ~~specific definable and controllable~~ size of approximately 50 microns, and a weight of approximately 0.99 to 1.004 grams per milliliter; and a viscosity less than 50 centipose per second;

and

filtering ~~from the wastewater~~ the solid particles from the wastewater ~~having a specific definable and controllable size and weight with~~ a generally tubular microfiltration membrane having a fluid flow of at least 250 GFD.
2. (Original) The process as recited in claim 1, wherein the coagulant polymer is selected from the group including: an aluminum compound having a charge of +3, an iron based compound having a charge of +3 and a calcium compound.

3. (Original) The process as recited in claim 2, wherein the aluminum based compound is selected from the group including: aluminum chloride, aluminum sulfide, poly aluminum chloride and aluminum chlorohydrate.
4. (Original) The process as recited in claim 2, wherein the iron based compound is selected from the group including: ferric sulfate and ferric chloride.
5. (Currently Amended) The process as recited in claim 1, wherein the coagulant polymer is added in an amount that is based upon a quantity of TSS, BOD and COD determined to be in the wastewater.
6. (Original) The process as recited in claim 1, wherein the coagulant polymer is added in an amount that is approximately equal to: $20 * ((\text{BOD Qty} + \text{COD Qty} + (0.35 * (\text{TSS Qty}))) / 1000)$, wherein the BOD Qty, COD Qty and TSS Qty represent the corresponding amounts of BOD, COD and TSS in the wastewater.
7. (Original) The process as recited in claim 1, wherein the coagulant polymer is a basic coagulant polymer when the pH of the wastewater is low and is an acidic coagulant polymer when the pH of the wastewater is high.
8. (Original) The process as recited in claim 1, wherein coagulant polymer is added in an amount between 50 to 200 ppm.

9. (Original) The process as recited in claim 1, wherein the synthetic organic polymer is a controlled mole weight cation.
10. (Original) The process as recited in claim 1, wherein the synthetic organic polymer is selected from the group including: DADMAC, acrylamide and epi-dma.
11. (Original) The process as recited in claim 1, wherein the synthetic organic polymer is epi-dma having a low molecular weight.
12. (Original) The process as recited in claim 1, wherein the synthetic organic polymer is an organic polymeric backbone of known molecular size and weight.
13. (Original) The process as recited in claim 1, wherein the synthetic organic polymer is added in an amount between a 5:1 and 25:1 ratio of coagulant polymer to synthetic organic polymer.
14. (Original) The process as recited in claim 1, wherein the synthetic organic polymer is added in an amount between 10 to 50 ppm.
15. (Cancelled)
16. (Original) The process as recited in claim 15, wherein the dwell time is between 5 and 30 minutes.
17. (Original) The process as recited in claim 1, wherein the filtering is performed by a polypropylene filter membrane.
18. (Currently Amended) The process as recited in claim 17, wherein the wastewater flows through the filter membrane from an ~~the~~ outside of the filter membrane to ~~the~~ an inside of the filter membrane.

19. (Original) The process as recited in claim 1, further comprising the step of adding a pH adjuster to the wastewater to adjust the pH of wastewater and to remove sulfates.
20. (Original) The process as recited in claim 19, wherein the pH adjuster is Mg(O).

21. (Currently Amended) A process of removing suspended and dissolved material from fruit and vegetable wastewater comprising the steps of:

adding the wastewater to a tank;

determining an amount of BOD, COD and TSS in the wastewater;

adding simultaneously to the wastewater in the tank:

adding an effective amount of an inorganic coagulant polymer to the wastewater creating a charge interaction wherein coagulated solid particles are formed from the suspended and dissolved material in the wastewater, wherein the effective amount of coagulated polymer added is approximately equal to: $20*((BOD\ Qty + COD\ Qty + (0.35*(TSS\ Qty)))/1000)$, where the BOD Qty, COD Qty and TSS Qty represent the corresponding amounts of BOD, COD and TSS in the wastewater;

adding an effective amount of a synthetic organic polymer having an known effective molecular size and weight to the wastewater to neutralize all the coagulated solid particles into solid particles having a specific definable and controllable size of approximately 50 microns, and weight 0.990 to 1.004 grams per milliliter; and a viscosity less than 50 centipose per second, wherein the amount of synthetic organic polymer added is between a 5:1 and 25:1 ratio of coagulant polymer to synthetic organic polymer; and

filtering from the wastewater the solid particles from the wastewater

having a specific definable and controllable size and weight with a

generally tubular microfiltration membrane having a fluid flow of at least 250 GFD.

22. (Original) The process as recited in claim 21, wherein the coagulant polymer is selected from the following group of compounds: an aluminum based compound having a charge of +3, an iron compound having a charge of +3, and a calcium compound.
23. (Original) The process as recited in claim 21, wherein the synthetic organic polymer is selected from the following group of compounds: DADMAC, acrylamide and epi-dma.

24. (Currently Amended) A process of removing suspended and dissolved material from a continuous stream of fruit and vegetable wastewater comprising the steps of:

adding continuously a stream of the wastewater to a tank;

adding simultaneously to the wastewater in the tank, adding an

inorganic coagulant polymer and a synthetic organic polymers to

the continuous stream of wastewater producing produce a

continuous stream of treated solution containing treated liquid and

solid particles having a specific definable and controllable size of

approximately 50 microns, and weight 0.990 to 1.004 grams per

milliliter; and a viscosity less than 50 centipose per second;

separating the solid particles from ~~and treated liquid from the~~

~~continuous~~ stream of treated solution by ~~using a settling process~~

~~and producing to produce~~ a ~~continuous~~ stream of treated liquid;

and

filtering the ~~continuous~~ stream of treated liquid through a filter generally

tubular microfiltration membrane ~~resulting in the collection of~~

having a fluid flow of at least 250 GFD to collect residual solid

particles and a ~~continuous~~ stream of filtered liquid.

25. (Original) The process as recited in claim 24, wherein the coagulant polymer is selected from the following group of compounds: an aluminum based compound having a charge of +3, an iron compound having a charge of +3 and a calcium compound.

26. (Original) The process as recited in claim 24, wherein the synthetic organic polymer is selected from the following group of compounds:
DADMAC, acrylamide and epi-dma.
27. (Original) The process as recited in claim 24, wherein the step of adding coagulant and synthetic organic polymers has a dwell time between 5 and 30 minutes.
28. (Original) The process as recited in claim 24, wherein the continuous stream of wastewater has a flow rate and the continuous stream treated solution has a flow rate and the two flow rates are equal.
29. (Original) The process as recited in claim 24, wherein the continuous stream of wastewater has a flow rate and the continuous stream treated liquid has a flow rate and the two flow rates are equal.
30. (Original) The process as recited in claim 24, wherein the residual solid particles collected on the filter membrane act as a separate filter that filters out other residual solid particles and as the residual solid particles accumulate on the filter membrane a fluid flow through the filter membrane is not significantly reduced.
31. (Original) The process as recited in claim 24, wherein the wastewater flows through the filter membrane from the outside of the filter membrane to the inside of the filter membrane.

32. (Currently Amended) A process of removing suspended and dissolved material from a continuous stream of fruit and vegetable wastewater comprising the steps of:

adding continuously the wastewater to a tank;

adding simultaneously to the wastewater in the tank:

adding an inorganic coagulant polymer and a synthetic organic polymers to the continuous stream of wastewater producing produce a continuous stream of treated solution containing treated liquid and solid particles having a specific definable and controllable size of approximately 50 microns, and weight 0.990 to 1.004 grams per milliliter; and a viscosity less than 50 centipose per second, wherein the coagulant polymer is selected from the following group of compounds: an aluminum based compound having a charge of +3, an iron compound having a charge of +3, and a calcium compound;

separating the solid particles from ~~and treated liquid from~~ the continuous stream of treated solution by ~~using a settling process and producing to produce~~ a continuous stream of treated liquid, wherein the synthetic organic polymer is selected from the following group of compounds: DADMAC, acrylamide and epi-dma; and

filtering the continuous stream of treated liquid through a filter generally tubular microfiltration ~~membrane resulting in the collection of~~ having a fluid flow of at least 250 GFD to collect residual solid particles and a continuous stream of filtered liquid, wherein the residual solid particles effectively stack ~~collected~~ on the filter

membrane to act as a separate filter ~~that filters out~~ for other residual solid particles and as the residual solid particles accumulate on the filter membrane a the fluid flow through the filter membrane is not significantly reduced.

33. (Original) The process as recited in claim 32, wherein the step of adding coagulant and synthetic organic polymers has a dwell time between 5 and 30 minutes.
34. (Original) The process as recited in claim 32, wherein the continuous stream of wastewater has a flow rate and the continuous stream treated liquid has a flow rate and the two flow rates are equal.

35. (Cancelled)